REMARKS/ARGUMENTS

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims are not anticipated under 35 U.S.C. § 102 and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 102

Claims 1, 2, 5, 6 and 31-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,088,090 ("the Yacoby patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claims 1 and 5 are not anticipated by the Yacoby patent because the Yacoby patent does not teach that packets sourced from client devices have at least a part of a layer 2 header replaced with a unique bit string that is independent of the contents of the received packets, and using at least a part of that unique bit string to determine access to service or a service level. Further, claim 5 is not anticipated because the Yacoby patent does not forward a packet to a queue associated with a service level. These claims are reprinted below with these features depicted in bold typeface.

> 1. A method for provisioning services to packets sourced
> from a number of client devices, the method comprising:
>   a) accepting a packet sourced from one of the
>   number of client devices, **wherein the packet has**

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had at least a part of a layer 2 header replaced
with a unique bit string that is independent of
any contents of the packet;
b) determining whether or not the packet is
entitled to access a particular service using at
least a portion of the unique bit string; and
c) if it is determined that the packet is entitled to
access the particular service, then routing the
packet. [Emphasis added.]

5. A method for providing various quality of service levels
to packets sourced from a number of client devices, the
method comprising:
a) accepting a packet sourced from one of the
number of client devices, wherein the packet has
had at least a part of a layer 2 header replaced
with a unique bit string that is independent of
any contents of the packet;
b) determining a service level to which the packet is
entitled using at least a portion of the unique bit string; and
c) forwarding the packet to a particular one of a
plurality of queues associated with the service level
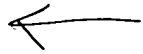determined. [Emphasis added.]

Each of these features is addressed below. First, however, the Yacoby patent is
briefly discussed.

The Yacoby patent concerns a device in one LAN sending data to a device in
another LAN. (See, e.g., column 1, lines 31-52.) In particular, the Yacoby patent
concerns MAC-layer interconnection. (See, e.g., column 2, lines 3 and 4.)
MAC-layer interconnection can be performed using one of two methods – transparent
routing, in which a bridge or router forwards a datagram using look-up tables, and
source routing, in which a bridge or router forwards a datagram using forwarding
information within the datagram itself. (See, e.g., column 2, lines 5-31.) The Yacoby
patent addresses the problem that bridges or routers would only support one
MAC-layer interconnection method or the other, but not both. (See, e.g., column 2,
lines 32-41.)

Briefly stated, the Yacoby patent discusses a device which (i) performs an
identification test on each packet, and (ii) if the packet was transmitted from a source

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routing node, then the bridge applies the source routing protocol (e.g., using appropriate LAN numbers in the routing field of the packet to forward), but (iii) if the packet was not transmitted from a source routing node, then the bridge applies the transparent routing protocol (e.g., using their self-learned look-up tables to forward). (See, e.g., column 5, lines 1-38, and elements 74, 76, and 78 of Figure 3.) The identification test simply uses a single bit in the MAC layer header. (See, e.g., Figure 2 and column 5, lines 53-59.) More specifically, the Yacoby patent states:

> If the source routing identifier is a logical 1, then the
> packet of information has a source routing field and
> uses the source routing method. On the other hand, if
> the source routing identifier is a logical 0, then there is
> not source routing field in the packet and transparent
> routing is applied to the packet information.

Column 5, lines 53-59. Accordingly, the Jacoby patent uses a **single bit of a layer 2 header** to determine which of two MAC-layer interconnection methods to use. This is different than using a unique **bit string, which replaced at least a portion of a layer 2 header**, to determine whether or not a packet is entitled to access a particular service, as recited in claim 1, or to determine a service level and forwarding the packet to a particular one of a plurality of queues associated with the determined service level as recited in claim 5.

In response, the Examiner contends that the recitation "each of the packets having at least a part of a layer 2 header replaced with a unique bit string that is independent of the contents of the received packets" should not be given patentable weight because it occurs in the preamble. Specifically, the Examiner concluded that the preamble should not be given weight because it merely recites a purpose or intended use of a structure. (See Paper No. 20, page 11.) Although the applicants respectfully disagree with the Examiner's rationale, given the fact that the preamble provided antecedent basis for "the unique bit string" in the body of claims 1 and 5, to expedite the prosecution of this application (which is on its fourth non-final Office Action), these claims have been amended to move this feature from the preamble to the body of the claim. Accordingly, this feature must now be given patentable

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weight, and claims 1 and 5 are therefore not anticipated by the Yacoby patent for at least the reasons set forth above.

The Examiner also contends that a source address and a source routing identifier teach using at least a portion of the unique bit string. However, this purported "unique bit string" did not replace a portion of the layer 2 header of the packet as recited in claims 1 and 5.

Since claims 2, 31 and 32 depend from claim 1 and since claims 6 and 33 depend from claim 5, these claims are similarly not anticipated by the Yacoby patent.

Further with regard to independent claim 5, the Yacoby patent does not teach forwarding a packet to a particular one of a plurality of queues based on a determined service level. In response, the Examiner contends that the FIFO 172 in Figures of the Yacoby patent teaches this feature. The Examiner is incorrect. First, the FIFO 172 stores headers of frames, not packets. (See, e.g., column 9, lines 1-6.) Moreover, the FIFO 172 apparently stores the frame headers regardless of a service level. In any event, the applicants have further amended claim 5 to more clearly distinguish the claimed invention, even over the Examiner's incorrect interpretation of the Yacoby patent. Specifically, claim 5 now recites determining a service level to which the packet is entitled using at least a portion of the unique bit string, and forwarding the packet to a particular one of a plurality of queues associated with the service level determined. Accordingly, independent claim 5 is not anticipated by the Yacoby patent for at least this additional reason. Since claim 6 depends from claim 5, it is similarly not anticipated by the Yacoby patent.

Dependent claims 2 and 6 are further not anticipated by the Yacoby patent. The Examiner continues to cite column 1, lines 53-59 as teaching that at least a portion of a unique bit string represents one of a number of logical interfaces. (See, e.g., Paper No. 18, page 3.) First, the cited section merely discusses the use of layer-3 (i.e., Network layer) information in a datagram to forward datagram. Moreover, the cited section concerns a "network layer interconnection method", which is different than the MAC-layer interconnection method of interconnecting two LANs. (See, e.g., column 1, lines 31-59.) However, the Yacoby patent only relates to MAC-layer interconnection, not to network layer interconnection. (See, e.g., column 2, lines 3

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and 4.) The Examiner also cites column 7, lines 29-47 as teaching this feature. However, this section discusses using a sequence of bits to represent "bridging device-LAN-bridging device" combinations. Moreover, these bits are described as being part of a routing field, which is a layer 3 field, not a layer 2 field. Accordingly, dependent claims 2 and 6 are not anticipated by the Yacoby patent for at least this additional reason.

Dependent claim 31 is further not anticipated by the Yacoby patent for at least the following reason. Even if a determination to use either source routing or transparent routing can be construed as determining whether or not the packet is entitled to access a particular service using at least a portion of the unique bit string, claim 31 recites that determining whether or not the packet is entitled to access a particular service using at least a portion of the unique bit string **is a separate determination from determining whether or not the packet can be forwarded.** The Examiner cites column 7, line 29 through column 8, line 24 as teaching this feature. (See Paper No. 20, page 5.) However, the cited section of the Yacoby patent apparently concerns defining a path, not determining whether or not the packet can be forwarded. Accordingly, claim 31 is not anticipated by the Yacoby patent for at least this additional reason.

Dependent claim 32 is further not anticipated by the Yacoby patent because routing a packet using source routing if it is determined to be able to use source routing does not teach routing the packet <u>only if</u> it is determined that it is entitled to access a particular service, as claimed. Specifically, in the Yacoby patent, if the packet isn't routed using source routing, it is routed using transparent routing. Accordingly, claim 32 is not anticipated by the Yacoby patent for at least this additional reason.

Dependent claim 33 is further not anticipated by the Yacoby patent because forwarding a packet to a queue associated with a determined quality of service level is not inherent. The Examiner mistakenly contends that packets are forwarded over a network, from one node to another, at a predetermined transmission rate which is inherently a quality of service level. If only the Examiner's position were true, service providers would not be spending literally billions of dollars upgrading their

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networks to support new applications such as voice over IP. The Internet, the most prominent packet network, has historically forwarded packets on a "best effort" basis. This may be acceptable for file transfer, but is not acceptable for applications sensitive to delay, lost packets, packets out of sequence, etc. Forwarding packets over a network at a predetermined transfer rate is not inherent. Quality of service (QoS) functionality being provided in network devices seeks to address this problem for various applications. Quality of service has a special meaning in the art, as the Examiner can see from the definition in the 15th Edition of Newton's Telecom Dictionary (filed herewith). Accordingly, claim 32 is not anticipated by the Yacoby patent for at least this additional reason.

Rejections under 35 U.S.C. § 103

Claims 3, 4, 7, 8, 16 and 18

Claims 3, 4, 7, 8, 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yacoby patent in view of U.S. Patent No. 5,946,313 ("the Allan patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Examiner concedes that the Yacoby patent does not teach that at least a portion of the unique bit string corresponds to a virtual private network-organizational universal identifier or a virtual private network-INDEX. But, the Examiner asserts that the Allan patent teaches these features, and further asserts that one skilled in the art would have been motivated to combine the purported teachings of these references. This ground of rejection is improper for at least three reasons.

First, the purported teaching of the Allan patent does not compensate for the deficiencies of the Yacoby patent with respect to claims 1 and 5, addressed above. Accordingly, even assuming, arguendo, that one skilled in the art would have been motivated to combine the purported teachings of the Allan patent with those of the Yacoby patent, the combined teachings still would neither teach, nor suggest the features discussed above with respect to claims 1 and 5. Accordingly, claims 3, 4, 7,

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8, 16 and 18 are not rendered obvious by the Yacoby and Allen patents for at least this reason.

Second, one skilled in the art would not have been motivated to combine the purported teachings as proposed by the Examiner. Apparently dropping the motivation to combine the references proposed earlier, the Examiner now contends that it would have been obvious to apply Allan's teaching into Yacoby's system to avoid inadvertent duplication of MAC addresses and ensure that conflicting MAC addresses do not exist. (See Paper No. 20, page 7.) However, the references do not suggest such a modification to Yacoby's system. Accordingly, claims 3, 4, 7, 8, 16 and 18 are not rendered obvious by the Yacoby and Allan patents for at least this additional reason.

Third, in the Allan patent, information (e.g., an ATM Organizationally Unique Identifier ("OUI"), ATM Virtual Path Identifier ("VPI"), ATM Virtual Channel Identifier ("VCI")) is merely inserted into the layer 2 header of a newly generated packet or frame -- it does not "replace" information in existing packets as recited in the claims. "Replace" as used in the claims has its ordinary meaning of "to take the place of" since there is already an existing packet with an existing layer 2 header. This is different from the Allan patent which inserts information in a newly generated Ethernet frame. More specifically, the Allan patent states:

> an end station 39, 39', 39'' generates an outgoing frame
> 3, with the destination MAC indicating the ATM OUI
> address of E-MUX 21, rather than the address of
> another end station in the Ethernet network 25.

Column 8, lines 21-25. To reiterate, in the Allan patent information originally in a header is not being replaced -- it is not used in the first place and therefore cannot be replaced.

In response, the Examiner notes "replaced" has not been given patentable weight because it was recited in the preamble. (Paper No. 20, page 14.) However, as noted in the discussion of claims 1 and 5 above, these claims have been amended to include this feature in body of the claims. Accordingly, claims 3, 4, 7, 8, 16 and 18

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are not rendered obvious by the Yacoby and Allan patents for at least this additional reason.

Claims 16 and 18 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yacoby patent in view of U.S. Patent No. 5,655,140 ("the Haddock patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Examiner concedes that the Yacoby patent does not teach a unique bit string replacing at least a part of the layer 2 header to generate a modified header which is the same size as the Ethernet header, but asserts that the Haddock patent teaches this feature, and further asserts that one skilled in the art would have been motivated to combine the purported teachings of these patents. This ground of rejection is improper for at least two reasons.

First, the purported teaching of the Haddock patent does not compensate for the deficiencies of the Yacoby patent with respect claims 1 and 5, addressed above. Accordingly, even assuming, arguendo, that one skilled in the art would have been motivated to combine the purported teachings of the Haddock patent with those of the Yacoby patent, the combined teachings still would neither teach, nor suggest the features of claims 1 and 5 addressed above. Accordingly, claims 16 and 18 are not rendered obvious by the Yacoby and Haddock patents for at least this reason.

Second, the Haddock patent is apparently simply concerned with frame translation (e.g., MAC to or from FDDI, and Ethernet to or from FDDI) as illustrated in Figures 11-13. Figure 13 illustrates the translation of an Ethernet frame to an FDDI frame. However, the Haddock patent fails to teach or suggest that the bit-size of modified header is the same as the bit-size of the original header. Indeed, it seems likely that they are not the same. Accordingly, claims 16 and 18 are not rendered obvious by the Yacoby and Haddock patents for at least this additional reason.

Claims 17-19

Claims 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yacoby patent in view of U.S. Patent No. 6,035,405 ("the Gage patent").

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The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, although the Gage patent discloses that security may be based on (i) a shared broadcast/multicast address, (ii) **an access port identifier**, (iii) a MAC source address, or (iv) an IP address, **it expressly teaches away from using such measures for security**, and instead proposes using an authentication server (AS) to "test" a newly connected end station. (See, e.g., column 2, lines 27-43 and column 5, lines 21-38.) More specifically, with regard to using an access port identifier, the Gage patent states:

> this does not prevent an intruder from disconnecting a
> legitimate end station and connecting an illegitimate
> one to the same physical port. Once connected, the
> illegitimate end station has access to possibly
> confidential information circulating within the VLAN.

Column 1, lines 48-53. As can be appreciated from the foregoing, the Gage patent clearly and strongly teaches away from using packet information for security, and therefore for making a determination of an end station in a VLAN (which is the motivation for combining the references offered by the Examiner). Indeed, this is the reason the Gage patent proposes using an authentication server to administer a key-based challenge-response test, passwords, synchronized security cards, voice printing, or fingerprinting. (See, e.g., column 5, lines 21-38.) Accordingly, claims 17 and 19 are not rendered obvious by the Yacoby and Gage patents for at least this reason.

Claim 34

Claim 34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yacoby patent in view of U.S. Patent No. 6,618,381 ("the Miyamoto patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

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The Examiner concedes that the Yacoby patent does not teach a quality of service level represented by a plurality of bits, but asserts that the Miyamoto patent teaches this feature, and further asserts that one skilled in the art would have been motivated to combine the purported teachings of these references. This ground of rejection is improper for at least two reasons.

First, the purported teaching of the Miyamoto patent does not compensate for the deficiencies of the Yacoby patent with respect claims 1 and 5, addressed above. Accordingly, even assuming, arguendo, that one skilled in the art would have been motivated to combine the purported teachings of the Miyamoto patent with those of the Yacoby patent, the combined teachings still would neither teach, nor suggest the features of claims 1 and 5 addressed above. Accordingly, claim 34 is not rendered obvious by the Yacoby and Miyamoto patents for at least this reason.

Second, the Examiner has interpreted the source and transparent routing as the two "service levels" in the Yacoby patent. Even taking the Examiner's definition of service level to include "source routing" or "transparent routing," source routing and transparent routing are not quality of service levels and are represented by only one bit. Since one bit can be used to distinguish these two types of routing, one skilled in the art would not have been motivated to use extra bits. To do so would require an interpretation of the Yacoby patent inconsistent with the one put forth by the Examiner. Accordingly, claim 34 is not rendered obvious by the Yacoby and Miyamoto patents for at least this additional reason.

New claims

New claim 35 is similar to claim 1, before the most recent amendment, but further recites the act of replacing at least a part of a layer 2 header of the packet with a unique bit string that is independent of any contents of the packet. Similarly, new claim 36 is similar to claim 5, before the most recent amendment, but further recites the act of replacing at least a part of a layer 2 header of the packet with a unique bit string that is independent of any contents of the packet.

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Conclusion

In view of the foregoing amendments and remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue. To the extent necessary, a petition for extension of time under 35 U.S.C. § 1.136(a) is hereby made, the fee for which should be charged to Patent Office deposit account number 07-2347. Any other fees required should be charged to, and any overpayment made should be credited to, such deposit account.
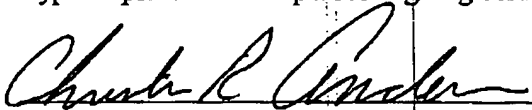
Respectfully submitted,

June 7, 2004

Joel Wall
Reg. No. 25,648

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